and wherein said step of extrapolating a withdrawal interval is carried out by:

determining a half-life multiplier from said first withdrawal time and said residue half-life;

determining a concentration at time zero for said first dose from said tolerance concentration and said half-life multiplier;

determining a concentration at time zero for said second dose from said first dose, said second dose, and said concentration at time zero for said first dose; and then

calculating said withdrawal interval from *(a)* said residue half-life, *(b)* said concentration at time zero for said second dose, and *(c)* said tolerance concentration.

25. 30. 52. A method of estimating a withdrawal interval for an adjusted dose of a compound from a prior withdrawal time for a corresponding prior dose of said compound, corresponding prior half-life data and a tolerance concentration, for a tissue of interest, said method comprising the following steps that are performed in a data processing system:

accepting selection of an adjusted dose for said compound for which a withdrawal interval is to be determined;

extrapolating a withdrawal interval from *(a)* said prior dose, *(b)* said prior withdrawal time, *(c)* said half-life data, and *(d)* said tolerance concentration;

wherein said tolerance concentration is a provisional acceptable residue determined by the method comprising:

providing an acceptable daily intake for said compound;

partitioning said acceptable daily intake among tissues according to a set of partitioning instructions; and

deriving said provisional acceptable residue for said tissue of interest from said partitioned acceptable daily intake.

26 31. 53. A method of estimating a withdrawal interval for an adjusted dose of a compound from a prior withdrawal time for a corresponding prior dose of said

compound, corresponding prior half-life data and a tolerance concentration, for a tissue of interest, said method comprising the following steps that are performed in a data processing system:

accepting selection of an adjusted dose for said compound for which a withdrawal interval is to be determined;

extrapolating a withdrawal interval from *(a)* said prior dose, *(b)* said prior withdrawal time, *(c)* said half-life data, and *(d)* said tolerance concentration;

wherein said adjusted dose is modified from said prior dose for species differences, disease differences or both.

29. ~~54.~~ A data processing system for estimating a withdrawal interval for an adjusted dose of a compound from a prior withdrawal time for a corresponding prior dose of said compound, corresponding half –life data and a tolerance concentration, for a tissue of interest, said data processing system comprising:

means for accepting selection of an adjusted dose for said compound for which a withdrawal interval is to be determined;

means for extrapolating a withdrawal interval from *(a)* said prior dose, *(b)* said prior withdrawal time, *(c)* said half-life data, and *(d)* said tolerance concentration;

wherein said half-life data is an empirically determined effective residue half-life, and wherein said means for extrapolating includes:

means for determining a half-life multiplier from said first withdrawal time and said residue half-life;

means for determining a concentration at time zero for said first dose from said tolerance concentration and said half-life multiplier;

means for determining a concentration at time zero for said second dose from said first dose, said second dose, and said concentration at time zero for said first dose; and

means for calculating said withdrawal interval from *(a)* said residue half-life, *(b)* said concentration at time zero for said second dose, and *(c)* said tolerance concentration.